

Nutrition in Precoception and Pregnancy

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Nutrition Before Pregnancy

Becoming healthy before becoming pregnant

- Pre-conception nutrition is a vital part of preparing for pregnancy.
- Factors such as a woman's weight compared with her height and what she eats can play an important role in a mother's health during pregnancy and the health of her developing fetus.

Introduction

- Optimal preconceptual nutrition supports successful conception when it includes adequate amounts of all of the required vitamins, minerals, and energy-providing macronutrients.
- Because the developing fetus depends solely on the transfer of substrates from its host, there is simply no other means to acquire nutrition in utero.

Introduction

- The quality and quantity of in-utero nourishment on the developing zygote, then fetus, then neonate, then adult emerges as one explanation for diseases that manifest in adulthood.

PRECONCEPTION HEALTH

- Achieving a healthy weight before pregnancy can improve chances of conception and pregnancy outcome and may improve lactation .
- Women who are obese at the start of pregnancy are at greater risk of gestational diabetes mellitus (GDM) and preeclampsia and of experiencing induced labor and cesarean section.

PRECONCEPTION HEALTH

- Infants born to women who were obese before pregnancy are at increased risk of NTDs, stillbirth, macrosomia, and obesity later in life.
- Thus reducing obesity preconceptionally may lower the risk of birth defects.

PRECONCEPTION HEALTH

- Preconceptual guidance is based on findings that many women enter pregnancy with suboptimal nutrition intake.
- One study of 249 pregnant women who reported for their first prenatal visit found low dietary intakes of vitamin E, folate, iron, and magnesium in the preconceptual period and during pregnancy.

PRECONCEPTION HEALTH

- Although current public health recommendations promote mostly folate supplementation, there is some evidence that other nutrients also reduce the risk of congenital defects, such as vitamins **B12, B6, and niacin, iron, and magnesium.**

PRECONCEPTION HEALTH

- Thus a preconceptual multivitamin supplement confers more benefit than single supplements for a pregnant woman.

PRECONCEPTION HEALTH

- Infertility may also be due to extremes in body mass index (BMI) in either partner. Dietary changes have been shown to decrease ovulatory disorders and improve fertility.
- Vitamin D deficiency in both men and women can be associated with infertility .

PRECONCEPTION HEALTH

- Calcium has been shown to be important in males for spermatogenesis, sperm motility, hyperactivation, and acrosome (area of the sperm that contains digestive enzymes to break down the outer layers of the ovum) reactions.

PRECONCEPTION HEALTH

- Healthier sperm counts are associated with avoidance of tobacco and alcohol as well as an optimal diet with zinc, folic acid, and antioxidants.

PRECONCEPTION HEALTH

- Maternal caffeine intake and infertility relationships are often debated .
- Caffeinated beverages are not considered to be of high nutritional quality and moderation is encouraged to ensure consumption of fluids with better nutrients, such as low-fat dairy, and 100% fruit juices.

PRECONCEPTION HEALTH

- A healthy, antioxidant-rich diet and an exercise program help women prepare for an optimal pregnancy outcome.

PRECONCEPTION HEALTH

- Folic acid supplements before and during the early stages of pregnancy reduce the risk of NTDs.
- Ideally, all women of childbearing age should be consuming 400 mcg/day of folic acid in addition to folate provide through foods

PRECONCEPTION HEALTH

- Women following vegan or other strict vegetarian diets should also take supplemental vitamin B12 because the status of this vitamin is another risk factor for NTDs

PRECONCEPTION HEALTH

- Preconception iron status is important to reducing the risk during pregnancy of iron deficiency and anemia, which, in turn, can lead to intrauterine growth restriction (IUGR) and preterm birth.

PRECONCEPTION HEALTH

- Preconception care should include screening for iron deficiency anemia. Multivitamin and mineral supplementation may help to improve nutritional status in women who are following inappropriate diets, are avoiding numerous foods or groups of foods, are underweight, are trying to lose weight.

PRECONCEPTION HEALTH

- Physical activity can help to improve weight and nutritional status; however, the amount of physical activity needed daily for weight management varies.

PRECONCEPTION HEALTH

- Management of preexisting chronic disease is another important element of preconception planning.
- Women with hypertension are at risk of maternal, fetal, and neonatal morbidity and mortality.

PRECONCEPTION HEALTH

- The severity of hypertension and the presence of preeclampsia affect pregnancy Outcomes.
- Diabetes increases the risk of birth defects, especially defects of the heart and central nervous system, and it also increases the risk of spontaneous abortion.

PRECONCEPTION HEALTH

- Attaining good blood glucose control before conception and during organogenesis can substantially reduce risks.
- To prevent mental retardation, microcephaly, and congenital heart disease in the infant, pregnant women with PKU must resume a low-protein, amino acid–modified diet during pregnancy.

PRECONCEPTION HEALTH

- Ideally, women with PKU should resume the diet before conception to regain control of blood phenylalanine and then maintain continued tight control throughout pregnancy